

**Village of Angel Fire  
3388 Mountain View Blvd.  
PO Box 610  
Angel Fire NM 87710  
(575) 377-1389**

**Public Notice  
Planning and Zoning Commission  
Regular Meeting Agenda  
February 6, 2014 at 5:00PM Village Hall Meeting Room**

- I. Call to Order**
- II. Pledge of Allegiance**
- III. Roll Call**
- IV. Approval of Agenda**
- V. Approval of Minutes**
  - A. Minutes of the December 5, 2013 Regular Meeting**
- VI. Requests and Responses from the Audience**
- VII. Announcements and Proclamations (Limit to 3 minutes)**
- VIII. New Business**
  - A. Title 9 Amendments-Fuel Modification**
- IX. Adjournment**

**Next Planning & Zoning Meeting will be: Thursday, March 6, 2014**

**The Public is welcome and Invited to Attend**

**Terry Cordova, Village Clerk  
Post: 1-28-14**

**Barbara Cottam, Mayor**

**AGENDA MAY BE PICKED UP AT VILLAGE HALL  
3388 MOUNTAIN VIEW BLVD, ANGEL FIRE NM 87710  
AGENDA MAY ALSO BE VIEWED AT OUR WEBSITE: [www.angelfirenm.gov](http://www.angelfirenm.gov).  
IF YOU ARE AN INDIVIDUAL WHO IS IN NEED OF ANY AUXILLARY AID OR SERVICE TO  
ATTEND THE MEETING, PLEASE CONTACT THE VILLAGE CLERKS OFFICE 48 HOURS PRIOR TO  
THE MEETING**

**VILLAGE OF ANGEL FIRE  
PLANNING AND ZONING COMMISSION  
REGULAR MEETING  
December 5, 2013**

**I. CALL TO ORDER**

Chairman Stille called the meeting to order at 5:00 PM.

**II. PLEDGE OF ALLEGIANCE**

Chairman Stille called for the flag salute.

**III. ROLL CALL**

Present were Chairman Stille, Commissioner Larson, Commissioner Lanon, Commissioner Lindsey, Commissioner May, Commissioner Orndorff and Commissioner Guenthner. Vice Chairman Davis was absent. Also present was Director Rivera.

**IV. APPROVAL OF AGENDA**

Commissioner Lanon made a motion to approve the Agenda for the December 5, 2013 Regular Meeting. Commissioner May seconded the motion. Motion passed.

**V. APPROVAL OF MINUTES**

**A. Minutes of the November 14, 2013 Regular Meeting**

Commissioner Lanon made a motion to approve the minutes from the November 14, 2013 Regular Meeting. Commissioner Larson seconded the motion. Motion passed.

**VI. REQUESTS AND RESPONSES FROM THE AUDIENCE**

None

**VII. ANNOUNCEMENTS AND PROCLAMATIONS**

Chairman Stille would like the Commissioners to think about a work session for the coming year. The Commissioners thought April would be better.

Mr. Rivera stated the building inspector has resigned but is working with the Village to be a part-time inspector.

**VIII. NEW BUSINESS**

**A. VAR 03-13 Wilborn**

Commissioner Guenthner made a motion to approve VAR-03-13 for a 25 foot setback variance; Commissioner Lindsey seconded the motion. Mr. Rivera explained this house was built prior to being annexed into the Village and that the county did not have any setback requirements. The other home on this cul-de-sac was granted a 25 foot variance back in 2007. Motion approved.

**IX. ADJOURN:** Chairman Stille adjourned the meeting at 4:06 PM

**Passed and Approved this Thursday, February 6, 2014 @ 5:00 PM.**

\_\_\_\_\_  
Mike Stille-Chairman

ATTEST:

\_\_\_\_\_  
Terry Cordova, Village Clerk

TRANSCRIBED:

\_\_\_\_\_  
Christine Breault



---

Memorandum

Date: 29 January 2014  
To: Planning & Zoning Commission  
From: Mark Rivera, Planning Director  
Subject: CWPP Update, Code Amendment to Section 9-7-13, Fuel Modification requirements.

After our initial experience utilizing this section of the code, it became apparent that these requirements will not work well for Angel Fire. Over 90% of our lots are one acre or less in size and if following these requirements could leave lots with very few trees remaining. Additionally, there are changes coming slowly that are going to shifting the burden of fire suppression away from the federal government to state and local governments, especially those communities that are located within the Wildland Urban Interface area.

This amendment is a basic shift from trying to stop a crown fire to preventing a crown fire from starting within the Village. The proposed language is also more reader friendly. On January 28, this proposal was presented to Council. That agenda item packet is attached. Council was very receptive to the amendment and staff supports it as well. I recommend that the P&Z Commission send a positive recommendation to Council.

**9-7-13: FUEL MODIFICATION AREA:**

~~A. General: The wildland fire risk in the village of Angel Fire requires establishment of a fuel modification area, the modification area shall extend at least thirty feet (30') from structures.~~

~~B. Treatment: Fuels are all combustible materials within the wildland urban interface or intermix including, but not limited to, vegetation and structures. Treatment includes limbing, lopping, pruning or cutting. Specific treatments will be determined by the village forester on a case by case basis. (Ord. 2010-05, 4-20-2010)~~

~~1. Ground fuels within the modification area space shall be treated or removed.~~

~~2. Dead material shall be removed and live vegetation past ten feet (10') of the structure shall be thinned and pruned.~~

~~3. Dead and/or downed fuels within the modification area of the building(s) shall be removed or treated to maintain the fuel modification area. (Ord. 2005-07, 8-18-2005)~~

~~4. Vegetation under trees within the fuel modification area shall be maintained at a height not to exceed six feet (6') that will preclude ground fire from spreading in the tree crown.~~

~~C. Combustible Materials: Other combustible material shall be removed from the modification area or stored in a suitable area as approved by the fire department or village forester. Combustibles, for example, are woodpiles, brush piles, grass mulching, tree debris and/or other combustible type material.~~

~~D. Existing Dwelling: All existing dwellings and structures may be subject to an inspection based on the community assessments of the community wildfire protection plan. The village forester will~~

identify a specific prescription for each new building permit. The lot must be thinned as part of the construction of the permitted work. (Ord. 2010-05, 4-20-2010)

**E. Lot Thinning Requirements:**

Defensible Space	Requirements	Recommendations	Comments
<b>Zone 1: Structure Protection</b>			
0-10' from structure	<p>Remove all pine needles and flammable ground materials</p> <p>Remove all ladder fuels</p> <p>Prune trees extending over eave of roof or 25%, whichever is less</p> <p>Remove branches within 15' of chimney</p>	<p>Maintain noncombustible ground material 10' around structure (planting beds, rock gardens, gravel or bare soil)</p> <p>Prune native tree limbs overhanging roof</p> <p>Bedding plants (&lt;18" high)</p> <p>Consider nonflammable landscape material (example: do not use railroad ties, wood fencing, etc.)</p>	<p>Consultation with the property owner will explain the "blended-eye" assessment of the property. Using this "added value" approach landscape elements and forest health issues, as well as fire hazard reduction, will be considered. The property owner can better achieve his land objectives.</p>
<b>Zone 2: Defensible Space</b>			
10-20' from structure	<p>Remove all pine needles and flammable ground materials</p> <p>Remove all ladder fuels</p> <p>Minimum 10' between stems of trees or "clumps" (maximum 5 trees/clump)</p> <p>Crowns of stems or between "clumps" do not touch</p> <p>Prune flammable tree limbs minimum 10' from ground or 25% of tree height, whichever is less</p> <p>10-15' between planting islands and groups of shrubs</p>	<p>Maintain low combustible ground covers</p> <p>Keep lawns watered and mowed (as conditions allow)</p> <p>Consider planting beds, rock gardens and fire resistant plants</p> <p>Bedding plants (&lt;18" high)</p> <p>Consider nonflammable landscape material</p>	<p>In both zone 1 and 2 attention will be paid to the potential threat posed by creeping and spot fire behavior. It is highly likely, given the number of lots 1 acre and less, that this zone will often overlap with neighboring property defensible space. It is also likely that assessments in areas with higher densities will be looked at as "neighborhoods" rather than individual properties. Individual consultations will occur in every case. Lots &lt; 1/2 acre are dealing with zone 1 and 2 for the most part.</p>
<b>Zone 3: Forest Woodland</b>			
30-60' from structure	<p>Maximum densities for target vegetation:</p>	<p>Remove all pine needles and flammable ground</p>	<p>In terms of thinning stems, the property owner will be advised of</p>

	<p>Ponderosa pine—14-16' tree spacing Mixed conifer—16-18' tree spacing</p> <p>Remove all ladder fuels</p> <p>10-15' between stems of trees or "clumps" (maximum 5 trees/clump); 10-15' between planting islands</p> <p>Prune tree limbs minimum 8' from ground or 25% of tree height, whichever is less—</p>	<p>materials</p> <p>Additional fuels reduction: Ponderosa pine—16'+ tree spacing Mixed conifer—18'+ tree spacing</p> <p>Prune tree limbs minimum 8-15' from ground or 25% of tree height, whichever is less—</p>	<p>the different marking prescriptions that will achieve the requirements but could result in different aesthetics (multi-story, even-aged, parklike, etc.). The property owner will decide. Zones 1, 2 and 3 constitute the minimum requirements around structures regardless of lot size. These zones have much to do with the ignitability of a structure and individual protection.—</p>
<b>Zone 4: Property Perimeter Buffer—</b>			
<p>60'+ property line for lots <math>\frac{3}{4}</math> acre or less</p> <p>120' wide buffer around perimeter for lots <math>&gt;\frac{3}{4}</math> acre—</p>	<p>Maximum densities for target vegetation: —Ponderosa pine—12-14' tree spacing —Mixed conifer—14-16' tree spacing</p> <p>Remove all ladder fuels</p> <p>10-15' between crowns of trees or "clumps" (maximum 7 trees/clump)</p> <p>10-15' between planting islands</p> <p>Prune tree limbs minimum 8' from ground or 25% of tree height, whichever is less—</p>	<p>Additional fuels reduction: —Ponderosa pine—14'+ tree spacing —Mixed conifer—16'+ tree spacing</p> <p>Prune tree limbs minimum 8-15' from ground or 25% of tree height, whichever is less</p> <p>Consider coordination with neighboring properties</p> <p>Recommend treatment of entire property—</p>	<p>Treatment in this zone addresses wildfire rate of spread and intensity. Consistent application of these treatments will create conditions where crown fire could be transformed into a ground fire, slowing its rate of spread and creating opportunity for fire resources to safely respond. A property owner with <math>&lt;\frac{3}{4}</math> acre is required to treat all of the property. A property owner with <math>&gt;\frac{3}{4}</math> acre is required to implement zones 1, 2, and 3 around any structures <math>&gt;50</math> square feet out to 60'. In addition, property owner shall create a buffer zone as described in zone 4. This zone now starts at the property line and comes in 120' minimum.—</p>

(Ord. 2005-07, 8-18-2005; and Ord. 2010-05, 4-20-2010)

And to be replaced with the following.

#### **DRAFT 14.01.14**

9-7-13: FUEL MODIFICATION AREA: These regulations are the minimum requirements. Property owners are encouraged to do more and go beyond these requirements. Scholastically, a "D" is a minimum passing grade.

- A. General: The wildland fire risk in the village of Angel Fire requires establishment of a fuel modification area, the modification area shall extend at least thirty (30') feet from structures.
1. Treatment: Fuels are all combustible materials within the wildland urban interface or intermix including, but not limited to vegetation and structures. Treatment includes limbing, lopping, pruning, cutting or raking.
  2. Combustible Materials: Other combustible material shall be removed from the modification area or stored in a suitable area as approved by the fire department or village forester. Combustibles include, but not limited to woodpiles, brush piles, pine needle, grass mulching, tree debris and or other combustible type material.
  3. Ladder Fuels - any type of fuel that can carry an open flame from the ground to a tree canopy including but not limited to low dead branches, tall grass, woody shrubs, or any combustible material leaning on or near the trunk of a tree.
  4. Structures:
    - a. Existing Structures and dwellings may be subject to an inspection based on the community assessments of the Community Wildfire Protection Plan. The Fire Department or Village Forester will identify a specific thinning prescription to bring the existing vacant lot, existing structure(s) and dwelling into compliance with this fuel modification section of the code.
    - b. New Structures authorized by building permit will be subject to this fuel modification section as part of the building permit to include all appropriate fuel modification zones on the lot associated with the building permit.
- B. Fuel Modification Management Zones: Two zones are established to create defensible space and promote a healthy forest.
1. Zone 1 is the area nearest the home and other structures. This zone requires maximum hazard reduction. The width of Zone 1 extends a minimum distance of 30-45 feet outward from a structure, depending on the lot size, slope, aspect and thinning prescription. Most flammable vegetation is removed in this zone, with the exception of fire-resistant plants. Zone 1 distances are measured from the outside edge of the structure's or dwelling's eaves and any attached structure such as decks and constructed walkways. Any trees left in this zone shall constitute a new radial measuring point for Zone 1.
    - a. Specific treatments are as follows:
      1. Remove all non-decomposing combustible materials and active slash\*.
      2. Remove all ladder fuels.
      3. Prune / Limb trees ten (10') feet above ground or twenty-five (25%) percent of tree height, whichever is less. This does not apply to ornamental\*\* trees.
      4. Prune trees five (5') feet over eave from roof and within fifteen (15') feet from chimney.
      5. Remove all standing dead and diseased trees.
      6. Remove all live conifer trees within ten (10) feet of all structure eaves.
      7. Minimum stem spacing between conifer trees shall be 10'-15' feet or a visible separation tree canopies.

8. Minimum stem spacing between clumps of trees, with a clump comprising a maximum of five conifer trees. Unless otherwise required by a specific thinning prescription, aspen trees are exempt from this requirement.

9. Driveways longer than thirty five (35') feet shall be thinned thirty (30') feet on both sides the length of the driveway in accordance with Zone 1 treatment requirements to provide safe ingress / egress of emergency equipment.

b. Specific maintenance is required:

1. Remove combustible materials from decks, roof, and gutters.

2. Storage of firewood and other combustible within forty five (45') feet of a structure is prohibited except during winter season.

3. Prevent accumulation of non-decomposing pine needles and leaves with periodical raking and disposal.

2. Zone 2. Zone 2 is measured from the edge of Zone 1 and extends to the property line. Zone 2 is designed to improve the health of the forest by reducing wildfire intensity, improve moisture infiltration, improve wildlife habitat and improve the health and growth rate of trees. All vacant lots shall comply to Zone 2 provisions

a. Specific treatments are as follows:

1. Minimum stem spacing between conifer trees shall be 10'-15' feet. The same shall apply to clumps of trees, with a clump comprising a maximum of five conifer trees. Unless otherwise required by a specific thinning prescription, aspen trees are exempt from this requirement.

b. Specific management recommendations include:

1. The healthiest forest is one that includes trees of multiple ages, sizes and species and where adequate growing room is maintained over time.

2. Snags, standing or fallen, one per acre can be retained to provide wildlife habitat, provided they have a minimum diameter of eight (8") inches and provided they do not create a nuisance or a hazard to power lines or firefighters access.

3. For personal safety, pruning / limb trees eight (8') up from the ground.

4. Raking of and picking up combustible materials should be expanded beyond Zone 1 on those portions of the lot that are downhill of all structures.

\*Active slash – tree trimmings and other combustible materials that have recently been cut/gathered, but not removed from site.

\*\*Ornamental Tree – deciduous trees that are less than 25 feet tall, having a defining feature such as flowers, unique foliage, notable bark, unusual branching or a combination of these features.

Village of Angel Fire  
P.O. Box 610  
Angel Fire, New Mexico 87710  
(575) 377-1389; FAX: (575) 377-3280



---

Memorandum

Date: 20 January 2014  
To: Mayor & Council, Manager Mitchell  
From: Mark Rivera  
Subject: CWPP Update

Last summer we implemented the Healthy Forest program. This has two components. First, developing a Registry List of Thinning Contractors. This list will be offered to property owners who ask for recommended contractors. To get on the registry, a contractor must provide contact information on three previous thinning projects to be inspected by the Fire Department. The contractor must provide the Village with proof of Liability Insurance and finally must hold a village business registration.

The second part of the program is to have the Fire Department inspect thinned lots and if found to be in general compliance, issue a 'Certificate of Healthy Forest'. This certificate is good for five years. If in the lifetime of that certificate, the property owner holding that certificate will not be subject to any increases in the Wildfire Protection fee. Homeowners can also use the certificate to leverage reduced insurance premiums.

With the inclusion of membership lots in the collection of the wildfire protection fee, we have received questions about the equity of collecting from membership lot owners. I have put together basic justification points for frontline staff to utilize. Jimmy Linton, took these points and converted them into an article which is currently posted on the front page of our website.

As I reported to the Council late last summer, fire suppression costs are escalating and there is general discussion at the federal level about shifting some of these costs to local governments where those communities are in the wildland urban interface and cause of the increasing suppression costs. I have included the executive summary of a 2010 report on this subject.

Last summer as we kicked off the Healthy Forest initiative, we soon realized that the fuel modification standards in the code are not entirely appropriate for the village. From a laypersons perspective, the requirements are confusing. Over 90% of all village lots are an acre or less in size. Following the standards to the letter can result in these small lots being left with only 10-30 trees. This could easily change the perspective of the public from voluntary thinning to mandatory nuisance enforcement cases. Additionally, this level of thinning would overwhelm the Solid Waste Department.

To address the fire suppression issue and the over bearing thinning requirements, we need to change how we approach the threat of wildfire. In recent years we have seen in New Mexico where forests have been thinned (Ruidoso, Sugarite State Park) and still were struck by major fire events. A fire on a windy day will rip through the forest canopy regardless of prior preparation. We believe that our focus should be to keep a fire that starts within the Village from getting to the canopy.

Attached is proposed rewrite of the fuel modification requirements to simplify them by reducing the number of zones from four to two and focusing more on the ground and near ground than tree separation.



# PROPERTY THINNING CONTRACTOR REGISTRY APPLICATION

**E-Mail Address:** \_\_\_\_\_

**Addresses and Descriptions of three thinning projects you have completed in or near Angel Fire that comply with the Fuel Modification Requirements (Section 9-7-13) of the Village Code, along with the Property Owner contact information for these projects. You may be asked to be on-site during property inspection.**

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

**If these projects are found to be in compliance with the Fuel Modification Requirements, you will be asked to provide your Angel Fire Business Registration Number and proof of Liability Insurance. Once these items are submitted and verified, you will be added to the Property Thinning Contractor's Registry.**



## **Village of Angel Fire Thinning Contractor Registry List**

**Companies and Individual on this list have demonstrated that they have the capacity to meet the Village requirements for properly restoring the forest health of your lot. They have liability insurance and their business is registered with the Village of Angel Fire. Updated 13 January 2014.**

**Enchanted Landscaping**  
**575.377.6341**  
**[enchantedlandscaping@hotmail.com](mailto:enchantedlandscaping@hotmail.com)**

**Olguin Enterprises, Inc.**  
**575.779.1767**  
**[olguinenterprises@msn.com](mailto:olguinenterprises@msn.com)**

**SS Rocks y Mas**  
**575.377.3617**  
**[rocksymas@hotmail.com](mailto:rocksymas@hotmail.com)**

**Canyon City Landscaping**  
**505.400.3857**  
**[Phil.bustos@gmail.com](mailto:Phil.bustos@gmail.com)**



# Certificate of Healthy Forest

This certificate has been issued to:

\_\_\_\_\_

\_\_\_\_\_ Date Issued

This certificate confirms that the property located at \_\_\_\_\_ has been inspected by the Village of Angel Fire and it has been determined that said property has been thinned in accordance with Section 9-7-13 of the Village Code Fuel Modification Requirements. This certificate is valid for a five year period starting on the date of issue.

Certification Number: \_\_\_\_\_

UPC Number: \_\_\_\_\_

Authorized by: \_\_\_\_\_  
Andy Bertges, Fire Chief  
Village of Angel Fire

## **Wildfire Protection Fee**

**History** – This fee was originally created and adopted by Council in 2008 as the ‘Slash Fee’. Portions of the slash fee were not implemented until 2012 when the slash fee was renamed ‘Wildfire Protection Fee’. Although authorized, the Village did not collect the fee on vacant lots until 2012 as our property database was incomplete with regards to vacant lots.

### **Why should we thin**

- The Wildfire Protection Fee is the funding source for the implementation of the Community Wildfire Protection Plan (CWPP). Implementation includes purchasing wildland fire apparatus, grapple trucks, industrial chippers & dump trucks. Installation of new street signs and evacuation routes. The Hiring of a certified Forester to write thinning prescriptions and conducting inspections.
- A wildfire will not discriminate between vacate and developed lots.
- Wildfire prevention has to be done across the entire community.
- The Angel Fire forest, as a whole is extremely stressed with heavy fuel loads.
- The Fire Hazard Ratings is ‘very high’ and ‘high’ for many sections of the village.
- Thinning done properly can improve the survival rate of both vacant and developed lots by keeping the fire on ground.
- A thinned forest opens the canopy to allow sunlight to reach the ground, which in turn allows for vegetation growth and diversity, which in turn supports wildlife.
- A thinned forest allows for more rainwater to better support the remaining trees and ground vegetation which in turn improved the health of the entire watershed.
- A thinned lot can reduce insurance premium for homeowners.
- This fee could just as easily have been called the ‘Healthy Forest Fee’

### **If we don’t thin**

- An overgrown forest reduces vegetation diversity and is not able to support wildlife populations.
- Too many tree stems have stunted growth as they fight each other for water and sunlight. These weakened tree stands are more susceptible to insect infestations which leave standing dead trees.
- An unhealthy forest that catches on fire will become a crown fire quickly. A crown fire burns hotter and spreads faster.
- A burnt forest destroys the health of its watershed. Subsequent rain has nothing to slow it down and becomes hungry water, sending ash and mud into streams, lakes and wetlands, which in turn chokes and kills all aquatic life.

To learn more about the CWPP go online to [www.angelfirenm.gov](http://www.angelfirenm.gov) > Documents > Fire Department > Community Wildfire Protection Plan and Appendices A-E. Customers can see where they property rates in Appendix B, Communities.

IF YOU WANT THE FULL REPORT, LET ME KNOW

# GETTING BURNED: A TAXPAYER'S GUIDE TO WILDFIRE SUPPRESSION COSTS

by Timothy Ingalsbee, Ph.D.

Firefighters United for  
Safety, Ethics, & Ecology

August 2010

**ABOUT THE AUTHOR:** Timothy Ingalsbee, Ph.D. is the executive director of Firefighters United for Safety, Ethics, and Ecology (FUSEE), and is a former wildland firefighter for the U.S. Forest Service and National Park Service. Ingalsbee is a nationally-recognized speaker and writer on fire management issues, and directed the Western Fire Ecology Center for the American Lands Alliance from 1997 to 2004. In 2002 Ingalsbee served on the Western Governors' Association's collaborative stakeholder group that developed the Implementation Plan and Performance Measures for the Ten-Year Comprehensive Wildfire Strategy. Ingalsbee was elected to serve as Board Secretary for the nonprofit Association for Fire Ecology from 2003-2009, and is currently working as Co-Director of AFE. Ingalsbee is also an adjunct instructor at the University of Oregon where he teaches courses on forest fires and society.

**ABOUT FIREFIGHTERS UNITED FOR SAFETY, ETHICS, AND ECOLOGY (FUSEE):** FUSEE (pronounced FEW-zee) is a national nonprofit organization founded in 2004 that is dedicated to public education and policy advocacy to promote safe, ethical, and ecological fire management. FUSEE members include current and former wildland firefighters, other fire management workers, fire researchers and educators, forest conservationists, rural homeowners, and other interested citizens. A "fusee" is a quick-igniting, handheld torch used by firefighters to secure firelines, create safety zones, reduce hazardous fuel loads, and restore fire-adapted ecosystems. FUSEE informs, inspires, and empowers firefighters and their citizen supporters to become *torchbearers for a new paradigm in fire management*.

**ACKNOWLEDGEMENTS:** The author would like to thank Douglas Bevington, Ph.D. and the Environment Now Foundation for inspiration and support for this project. Thanks also go to Joseph Fox, Ph.D. and Catia Juliana for editing and formatting the paper. All photos are courtesy of the Bureau of Land Management and U.S. Forest Service.

For more information on wildfire suppression costs and related issues contact:

FUSEE, 2852 Willamette #125, Eugene, OR 97405  
Phone: 541-338-7671 Email: [info@fusee.org](mailto:info@fusee.org)  
Website: [www.fusee.org](http://www.fusee.org)



First edition published July, 2010  
(© Copyright 2010 by Timothy Ingalsbee)

# GETTING BURNED: A TAXPAYER'S GUIDE TO WILDFIRE SUPPRESSION COSTS

## TABLE OF CONTENTS

<b>Executive Summary .....</b>	<b>3</b>
<b>Part One ~ Introduction: Big Fires=Bigger Costs .....</b>	<b>5</b>
Soaring Suppression Costs Are Consuming Agency Budgets .....	6
Fighting Large Wildfires Costs The Most Money .....	8
<b>Part Two ~ Socioenvironmental Cost Factors: Fuels, Homes, And Climate Change .....</b>	<b>10</b>
Fuels Accumulation .....	10
WUI Protection Costs .....	11
Climate Change .....	13
<b>Part Three ~ Institutional Cost Factors: Perverse Budgetary Incentives, Private Contract</b>	
Firefighting, And Federal-State Cost-Share Agreements .....	14
Congressional Blank Check For Suppression .....	14
Private Firefighting Contractors .....	15
Federal-State Cost-Share Agreements .....	17
<b>Part Four ~ Operational Cost Factors: External Pressures, Managerial Accountability and</b>	
Risk-Aversion, Wildfire Management Strategy And Tactics .....	19
Human Factors .....	19
External Political/Cultural Factors .....	19
Internal Factors: Leadership Accountability And Risk-Aversion .....	21
Agency Bias For Suppression And Lack Of Accountability For Reducing Costs .....	21
Lack Of Incentives For Fire Use And "Risk-Adverse" Managers .....	22
<b>Part Five ~ Lessons Learned, Looking to the Future .....</b>	<b>24</b>
Summary .....	24
Conclusion: Controlling Suppression Costs .....	29
Post-Script: The Cohesive Strategy For Wildfire Management .....	33
<b>Bibliography .....</b>	<b>35</b>
<b>Endnotes .....</b>	<b>40</b>

## EXECUTIVE SUMMARY

Wildfire suppression costs are soaring to over one billion tax dollars per year. This is causing a fiscal crisis in the Forest Service which has exceeded its suppression budget almost every year for the last 20 years. The agency now spends nearly half of its total appropriated budget on firefighting, and has been forced to transfer billions of dollars away from several non-fire land management programs to pay for suppression. Recent legislative changes to suppression funding (e.g. the FLAME fund) may provide better accounting for suppression costs, but do not impose firm budgetary limits on suppression spending, nor absolutely prevent continued transfers of funds from other management programs to pay for firefighting.

Part of the reason suppression costs are rising is because wildfire activity is increasing, especially the frequency of large-scale wildfires. Large fires account for less than 2% of all wildfires but consume 94% of total suppression costs. Despite huge increases in money, resources, and personnel being devoted to fire suppression, the number of burned acres continues to increase. While currently 6-8 million acres defines a “bad” fire season, experts predict an average 10-12 million acres will burn annually in the near future primarily under the impact of global warming.

Suppression costs are increasing due to several reasons that can be categorized according to socioenvironmental, institutional, and operational factors. The most popularly cited reasons for rising suppression costs are the socioenvironmental factors of excess fuels accumulations caused in part from past fire suppression, expansion of housing development in the wildland/urban interface (WUI), and climate change from global warming fueled primarily by human-caused fossil fuel burning. Of these three, climate change is the dominant factor affecting increased wildfire activity and fire size due to its effect on weather and vegetation and length of wildfire season.

Next to total fire size, the presence of private property or human structures in the vicinity of wildfires is the other factor most affecting the rise in suppression costs. Fire managers speculate that up to half of total suppression expenditures are related to private property protection in the WUI. Over 44 million homes in the U.S. are currently located in fire-prone WUI areas, but the Forest Service predicts a 40% increase in new homes in the WUI by 2030 which some studies estimate could raise annual suppression costs from \$2 to 4 billion.

Among the institutional drivers of rising suppression costs are the budgetary structure for the Forest Service that authorized deficit spending for suppression operations. This has nurtured an “open checkbook” attitude among managers to order whatever resources or actions they desire regardless of cost, and this inhibits efforts to contain costs. Worse, some critics argue that the budget system with authorized deficit spending has set up a system of “perverse incentives” for agencies to rely on reactive fire suppression actions rather than proactive fuels reduction or ecosystem restoration projects since these must be funded by fixed budgets, and impose more legal requirements (e.g. environmental analysis and public involvement) in comparison to firefighting actions which have almost no budgetary limits, legal constraints, or public oversight due to their “emergency” status.

Another institutional driver of rising suppression costs is the growing use of private contractors to provide firefighting crews, aircraft, vehicles, supplies and services. Private contractors typically account for over half of total expenditures on large wildfire suppression incidents, with some suppression resources costing several thousands of dollars per hour to use. The privatization of firefighting has been driven largely by political and ideological interests seeking to shrink the size of the federal workforce, and has been



sustained by the promise that private businesses would provide cheaper, better, more efficient service. However, private contractors not only cost more than public agency crews, but there have been concerns about the inferior work performance of some contractors whose lack of productivity (e.g. fireline construction) also raises suppression costs.

Another institutional factor is the inequity structured into cost-share agreements between the federal and state governments. The federal government usually pays the bulk of suppression expenses on multi-jurisdictional wildfires, even if the major reason a wildfire is being suppressed is to protect private or state lands. Local, county, and state governments receive all of the benefits of new development in the WUI (e.g. increased property taxes, building permits revenue, etc.), but do not pay their full share of wildfire protection costs. The result is that taxpayers across the country are essentially “subsidizing” private development in an expanding WUI by providing free/low-cost fire protection to private property owners. More equity in cost-share agreements would not necessarily reduce suppression costs, but might provide more incentives to local governments to restrict or regulate WUI development in ways that reduce the risk of wildfire damage and therefore reduce the pressure for aggressive suppression on adjacent public lands.

Operational factors are the least-discussed reasons for rising suppression costs, but the human factors influencing the objectives, strategies and tactics managers employ to respond to wildfires have huge cost implications. First, the agency is sensitive to external cultural expectations by the public and political demands by politicians to aggressively fight all wildfires. Expensive suppression resources or actions are sometimes ordered to satisfy agencies’ public relations needs even though conditions on the ground make them unnecessary, inefficient, or ineffective. There is far more pressure placed on managers to prevent wildfire damage than to reduce suppression costs, consequently, there is a general lack of accountability for suppression spending, and numerous reports and recommendations for containing suppression costs have largely been ignored.

Along with external pressures to fight fires, and a lack of accountability for reducing suppression costs, there is a lack of incentives for managers to implement alternatives to aggressive suppression, especially wildland fire use. Managers fear public reaction, personal liability, or professional demerits on their careers if any accidents (e.g. firefighter fatalities, destroyed homes, scorched private lands) were to occur from a wildfire they were managing for resource benefits. These so-called “risk-adverse” managers are actually comfortable with imposing risk on firefighters by exposing them to the inherent health hazards and safety risks of firefighting, and externalizing risk to ecosystems due to the biological effects of fire suppression/exclusion and the potential increased severity of future wildfires. Consequently, many wildfires are unnecessarily or over-aggressively suppressed when they could have been managed at lower risk to firefighters and lower cost to taxpayers.

Of all the factors accounting for rising suppression costs, operational factors have the most potential to immediately reduce suppression costs. Managing wildfires—as opposed to simply “fighting” them—with alternative strategies and tactics that maximize the social and ecological benefits of burning while minimizing their potential adverse effects is far more economically and ecologically rational. A more strategic and selective approach to fire suppression would focus it on frontcountry communities which absolutely cannot tolerate fire, and then implement fire use tactics in backcountry wildlands which generally require more fire. This approach would not necessarily reduce overall taxpayer expenditures since managing wildfires that burn larger and longer will still cost money. But, instead of these being pure “costs” whose only benefit is the avoidance of adverse outcomes, fire management operations that use fire would become more like investments in beneficial community protection, fuels reduction, and ecosystem restoration that enhances long-term community sustainability and land stewardship.

## **PART ONE**

### **INTRODUCTION:**

### **BIG FIRES=BIGGER COSTS**

In 1908 a Congressional legislative rider created the Forest Fires Emergency Act that gave the U.S. Forest Service the authority to engage in deficit spending for fire suppression. The USFS could spend unlimited amounts of tax dollars in the heat of battle, fighting fires without any real fiscal constraint. During the “Big Blowup” of 1910 when 3 million acres burned in the northern Rockies, the fledgling agency exercised this authority when it spent over \$1.1 million attempting to suppress the fires. Today, \$1 million is the average *daily* cost of a typical large fire suppression incident. Federal agencies now spend over \$1 *billion* annually on firefighting while the number of burned acreage continues to grow.

Up until the 1950s, an average 30 to 40 million acres burned annually in the national forests of the West, but there was no sense of “crisis” during this time—American society had other fiscal problems to confront and other wars to fight. Following World War II, the number of acres burned nationwide plummeted to around 3 million acres per year, and that became the new “normal” to most people. The convergence of prolonged cool, moist climatic conditions, a growing federal workforce ready, willing, and able to serve as a firefighting “militia,” and an aggressive road-building program that enabled convoys of firefighters and heavy equipment to be sent into formerly remote wildlands all helped to keep the number and size of wildfires unnaturally low. The agency had plenty of incentive to aggressively attack all wildfires and put them out as quickly and cheaply as possible in the post-War period because its budget appropriations centered on its commercial logging program, and wildfires were perceived as threats to the timber resource and the agency’s revenue.

Then a sudden shift occurred in the late 1980s beginning with the “Siege of ‘87” in California and Oregon, followed the next year by the massive Yellowstone Fires. These large-scale, long-duration wildfire events marked the beginning of significant changes in the size of individual wildfires, the total number of acres burned, and the costs of fighting fires.<sup>1</sup> The 1994 fire season shocked fire management agencies with another huge increase in the costs of firefighting, along with the ultimate cost of 34 firefighters killed in action. A full-blown crisis over the risks, costs, and impacts of wildfire suppression had arrived.

Beginning with the 1995 Federal Wildland Fire Management Policy and Program Review, a number of studies, reports, and policy initiatives were offered to both improve firefighter safety and reduce the rising costs of fire suppression. There have been a multitude of other reports over the last 15 years attempting to understand why the size of wildfires and number of acres burned continues to increase, and above all, trying to figure out why the costs of suppression continue to rise even during years when wildfire activity temporarily declines. Each year of high suppression costs prompts a new series of cost reviews, with new rules and guidelines intended to contain or reduce suppression costs, but most of these reports and recommendations are overlooked, ignored, or forgotten, only to be repeated with each “bad” fire season in a continuing “boom and bust” cycle of Congressional funding.<sup>2</sup> Despite spending billions of tax dollars and deploying thousands of firefighters, for the foreseeable future we will see the size and duration of wildfires continue to grow along with the costs and impacts of fire suppression.

This report will review some of the major social and environmental factors causing fire suppression costs to keep rising. Some of the lesser-known and often overlooked explanations such as the “human

## **DRAFT 14.01.14**

**9-7-13: FUEL MODIFICATION AREA:** These regulations are the minimum requirements. Property owners are encouraged to do more and go beyond these requirements. Scholastically, a "D" is a minimum passing grade.

- A. General: The wildland fire risk in the village of Angel Fire requires establishment of a fuel modification area, the modification area shall extend at least thirty (30') feet from structures.
  - 1. Treatment: Fuels are all combustible materials within the wildland urban interface or intermix including, but not limited to vegetation and structures. Treatment includes limbing, lopping, pruning, cutting or raking.
  - 2. Combustible Materials: Other combustible material shall be removed from the modification area or stored in a suitable area as approved by the fire department or village forester. Combustibles include, but not limited to woodpiles, brush piles, pine needle, grass mulching, tree debris and or other combustible type material.
  - 3. Ladder Fuels - any type of fuel that can carry an open flame from the ground to a tree canopy including but not limited to low dead branches, tall grass, woody shrubs, or any combustible material leaning on or near the trunk of a tree.
  - 4. Structures:
    - a. Existing Structures and dwellings may be subject to an inspection based on the community assessments of the Community Wildfire Protection Plan. The Fire Department or Village Forester will identify a specific thinning prescription to bring the existing vacant lot, existing structure(s) and dwelling into compliance with this fuel modification section of the code.
    - b. New Structures authorized by building permit will be subject to this fuel modification section as part of the building permit to include all appropriate fuel modification zones on the lot associated with the building permit.
- B. Fuel Modification Management Zones: Two zones are established to create defensible space and promote a healthy forest.
  - 1. Zone 1 is the area nearest the home and other structures. This zone requires maximum hazard reduction. The width of Zone 1 extends a minimum distance of 30-45 feet outward from a structure, depending on the lot size, slope, aspect and thinning prescription. Most flammable vegetation is removed in this zone, with the exception of fire-resistant plants. Zone 1 distances are measured from the outside edge of the structure's or dwelling's eaves and any attached structure such as decks and constructed walkways. Any trees left in this zone shall constitute a new radial measuring point for Zone 1.
    - a. Specific treatments are as follows:
      - 1. Remove all non-decomposing combustible materials and active slash\*.
      - 2. Remove all ladder fuels.
      - 3. Prune / Limb trees ten (10') feet above ground or twenty-five (25%) percent of tree height, whichever is less. This does not apply to ornamental\*\* trees.
      - 4. Prune trees five (5') feet over eave from roof and within fifteen (15') feet from chimney.
      - 5. Remove all standing dead and diseased trees.

6. Remove all live conifer trees within ten (10) feet of all structure eaves.
7. Minimum stem spacing between conifer trees shall be 10'-15' feet. The same shall apply to clumps of trees, with a clump comprising a maximum of five conifer trees. Unless otherwise required by a specific thinning prescription, aspen trees are exempt from this requirement.
8. Driveways longer than thirty five (35') feet shall be thinned thirty (30') feet on both sides the length of the driveway in accordance with Zone 1 treatment requirements to provide safe ingress / egress of emergency equipment.

b. Specific maintenance is required:

1. Remove combustible materials from decks, roof, and gutters.
2. Storage of firewood and other combustible within forty five (45') feet of a structure is prohibited except during winter season.
3. Prevent accumulation of non-decomposing pine needles and leaves with periodical raking and disposal.

2. Zone 2. Zone 2 is measured from the edge of Zone 1 and extends to the property line. Zone 2 is designed to improve the health of the forest by reducing wildfire intensity, improve moisture infiltration, improve wildlife habitat and improve the health and growth rate of trees. All vacant lots shall comply to Zone 2 provisions

a. Specific treatments are as follows:

1. Minimum stem spacing between conifer trees shall be 10'-15' feet. The same shall apply to clumps of trees, with a clump comprising a maximum of five conifer trees. Unless otherwise required by a specific thinning prescription, aspen trees are exempt from this requirement.

b. Specific management recommendations include:

1. The healthiest forest is one that includes trees of multiple ages, sizes and species and where adequate growing room is maintained over time.
2. Snags, standing or fallen, one per acre can be retained to provide wildlife habitat, provided they have a minimum diameter of eight (8") inches and provided they do not create a nuisance or a hazard to power lines or firefighters access.
3. For personal safety, pruning / limb trees eight (8') up from the ground.
4. Raking of and picking up combustible materials should be expanded beyond Zone 1 on those portions of the lot that are downhill of all structures.

\*Active slash – tree trimmings and other combustible materials that have recently been cut/gathered, but not removed from site.

\*\*Ornamental Tree – deciduous trees that are less than 25 feet tall, having a defining feature such as flowers, unique foliage, notable bark, unusual branching or a combination of these features.